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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,430	04/12/2004	John A. Krawczak	EA-00282	2554

7590 12/13/2010  
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EXAMINER
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STULTZ, JESSICA T

ART UNIT	PAPER NUMBER
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2873

MAIL DATE	DELIVERY MODE
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12/13/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* JOHN A. KRAWCZAK

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Appeal 2009-007088  
Application 10/822,430  
Technology Center 2800

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Before KENNETH W. HAIRSTON, MAHSHID D. SAADAT,  
and ROBERT E. NAPPI, *Administrative Patent Judges*.

SAADAT, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

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<sup>1</sup> The two month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304 or for filing a request for rehearing as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

Appellant appeals under 35 U.S.C. § 134(a) from a Final Rejection of claims 1-8 and 10-29, which constitute all the claims pending in this application. Claim 9 is cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

### STATEMENT OF THE CASE

Appellant's invention relates to optical transmission of information in which a bias provided to an electroabsorption modulator (EAM) is actively adjusted to reduce or eliminate the occurrence of a harmonic, such as a second or third order harmonic, produced in connection with the encoding process. For example an optical beam may be modulated to encode information through use of an EAM. The encoded optical beam is monitored to measure a harmonic value and, upon detection of the harmonic value, an electrical input provided to the EAM is adjusted based upon the measured harmonic value. (*See Spec. 5:21-29.*) Claim 1, which is illustrative of the invention, reads as follows:

1. A method of transmitting an optical beam, comprising:  
modulating an optical beam to encode information through use of an electroabsorption modulator (EAM) that receives an electrical input signal;  
monitoring the encoded optical beam to measure a harmonic value; and  
upon detection of the harmonic value, adjusting the electrical input signal provided to the EAM based upon the measured harmonic value.

The Examiner relies on the following prior art in rejecting the claims:

Hui	US 6,438,148 B1	Aug. 20, 2002
Notargiacomo	US 6,879,422 B2	Apr. 12, 2005

Claims 1-8 and 10-29 stand rejected under 35 U.S.C. § 103(a) as obvious over Notargiacomo in view of Hui.

Rather than repeat the arguments here, we make reference to the Briefs (Appeal Brief filed Mar. 9, 2007; Reply Brief filed Sep. 27, 2007) and the Answer (mailed Jul. 24, 2007) for the respective positions of Appellant and the Examiner. Only those arguments actually made by Appellant have been considered in this decision. Arguments that Appellant did not make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

## ISSUE

Appellant makes substantially the same argument for the patentability of independent claims 1, 7, 13, and 18 (App. Br. 11-14), but provides no additional substantive arguments for the patentability of the dependent claims, relying solely on the arguments for the claims from which they depend (App Br. 14). Therefore, we select claim 1 as the representative claim, pursuant to our authority under 37 C.F.R. § 41.37(c)(1)(vii).

The issue presented is whether Hui discloses the claimed EAM such that claim 1 is obvious over the combination of Notargiacomo and Hui.

## FINDING OF FACT

Hui discloses that

The encoding means 24 and 34 may include electro-optical modulators or other known types of modulators providing the required speed of operation. Preferably, the modulators are electro-absorptive, LiNbO<sub>3</sub> or III-V semiconductor material based devices, either Mach-Zehnder or travelling wave type.

(Col. 8, ll. 46-51.)

## PRINCIPLES OF LAW

“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). “If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.” *Id.* at 417. “The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents.” *Id.* at 419. In determining obviousness “a reference . . . is prior art for all that it teaches.” *Beckman Instruments, Inc. v. LKB Produkter AB*, 892 F.2d 1547, 1551 (Fed. Cir. 1989).

## ANALYSIS

The Examiner acknowledges that the primary reference, Notargiacomo, discloses an electro-optical modulator rather than an EAM as recited in claim 1 (Ans. 3). The Examiner cites to Hui as disclosing the substitution of EAMs for electro-optical modulators in feedback schemes (Ans. 3-4, 12-14). Appellant contends neither references teaches or suggests the claimed feature of adjusting the electrical input signal of the modulator based on a measured harmonic value (App. Br. 12; Reply Br. 12). Appellant argues that Hui does not teach the use of EAMs because the use of the term “electro-absorptive” would be recognized by one skilled in the art as an error or misuse of the term based on the full context of the passage (App. Br. 14; Reply Br. 13-14). Appellant further argues that there is no suggestion or motivation to combine Notargiacomo with Hui, because Hui is not directed

to using feedback to control the same parameter as is Notargiacomo or Appellant's invention (App. Br. 11-14; Reply Br. 11-15).

We find Appellant has provided insufficient evidence to conclude that Hui's disclosure of EAMs is a misuse of the term "electro-absorptive" or an error. We also agree with the Examiner (Ans. 12) that Hui was relied on merely for showing modulation of an optical beam using an EAM, whereas Notargiacomo was relied on for disclosing the specific features Appellant disputes (*id.*). We further agree with the Examiner that Hui teaches that the interchangeability of various types of modulators, such as electroabsorption and electro-optical, is known to those skilled in the art. In fact, Hui suggests that encoders may be electro-optical modulators or other known types of modulators, including electroabsorption ("electro-absorptive") modulators, modulators made from a LiNbO<sub>3</sub> semiconductor material, modulators made from a III-V semiconductor material,<sup>2</sup> modulators of the Mach-Zehnder type, and modulators of the traveling wave type (FF). As such, modifying Notargiacomo by interchanging modulator types is within the ability of one of ordinary skill in the art at the time of the invention. *See Beckman*, 892 F.2d at 1551.

With respect to the claimed adjusting the electrical input signal provided to the modulator, we find that the Examiner provided a convincing line of reasoning that is sufficiently supported by relying on columns 13-15 of Notargiacomo (Ans. 13). However, Appellant's response to the Examiner's explanation merely repeats the allegation stated in the Appeal

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<sup>2</sup> Hui's disclosure of this type of modulator is consistent with the examples of various materials used for construction of EAMs disclosed in Appellant's specification describing modulators constructed of III-V semiconductor materials, e.g., GaAs (Spec. 4:15-20).

Brief (Reply Br. 12) without specifying how the disputed features are different from the prior art.

Additionally, Appellant's reliance on the alleged lack of a suggestion or motivation for the combination is misplaced. *See KSR*, 550 U.S. at 419. We find that the combination that results from substituting Hui's EAM for Notargiacomo's electro-optic modulator is a combination of familiar elements according to known methods that does no more than yield predictable results, *see id.* at 416, that can be implemented by a person of ordinary skill, *see id.* at 417. Accordingly, for the reasons stated above, we sustain the rejection of claims 1-8 and 10-29.

#### ORDER

The decision of the Examiner to reject claims 1-8 and 10-29 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(v).

#### AFFIRMED

babc

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